

## **ABSTRACT**

### **Long latency auditory evoked potentials pre and post fitting of percutaneous bone-anchored hearing aids**

Ear atresia occurs from some alteration in the embryonic development period of the external auditory canal and is characterized by hypoplasia or aplasia of the external auditory canal, with unilateral involvement being seven times more common when compared to bilateral involvement. To assess the integrity of the central auditory nervous system and the neural processes involved in auditory stimulation in the thalamus and auditory cortex regions, Long Latency Auditory Evoked Potentials are performed. Therefore, the objective of the present study was to compare the latencies and amplitudes of these potentials, as well as the audiological results before and after three months of adaptation of the Ponto® system in individuals with congenital bilateral aural atresia. The study was developed at the Hospital for Rehabilitation of Craniofacial Anomalies of the University of São Paulo, with ethical approval protocol number 4.393.704. Exclusion criteria were individuals who did not attend at any stage of the study, and those who were indicated for surgery to implant the Ponto® system were included. These were submitted to pure tone audiometry, free field audiometry, sentence recognition in silence and noise and the examination of long latency auditory evoked potentials before and after three months of device use. As a result, no changes were observed in the thresholds identified by air and bone in the pure tone audiometry and improvements were observed in the minimum levels of auditory response in the audiometry in free field and in the thresholds of sentences in silence and in noise. As for the long-latency auditory evoked potentials, those did not differ when compared before, after and with the Ponto® device turned on. Thus, it is possible to conclude that the use of the Ponto® system did not change the latency or amplitude of the long-latency auditory evoked potentials, however, it promoted benefits to its users with regard to the auditory abilities of detection and recognition of sentences in silence and noise.

**Keywords:** Hearing Aids; Bone Conduction; Event-Related Potentials, P300; Audiometry; Audiometry, Speech.